

VOLUME 2

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MONTANA WILD LIFE

JULY



OFFICIAL PUBLICATION OF THE
MONTANA STATE FISH AND GAME DEPARTMENT

God's Temples

By Janette Martin



*Men plan and build from timbers,
Oaken, hewn and strong—
A temple with an altar
For offering prayer and song.*

*But I can see a temple—
'Tis where no foot has trod;
It is a lofty mountain height
And it lifts my soul to God.*

*In majesty it rises
Above an emerald bay—
Amid fair Nature's wild serene
It seems a place to pray.*

*No famed spire rises o'er it—
I hear no tolling bells,
But something calls to worship—
Of adoration tells.*

*Oh! surely 'tis a temple
Designed by God's own hand,
Else why do mountain heights lift up
And make us understand?*



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VOL. II

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NO. 2

State Game Farm to Be Beauty Spot

MONTANA'S state game farm is fast becoming a reality. For years the State Fish and Game Commission has been attempting to restock the depleted fields and forests by importing Hungarian partridge, Chinese pheasants and a few quail. Plans are now in the making to create the new state game farm for the rearing of these hardy game birds on the scenic grounds in a natural park of the state hospital at Warm Springs. The State Board of Examiners, working in conjunction with Dr. H. A. Bolton, superintendent, has agreed to permit the State Fish and Game Commission to utilize 20 acres in the scenic park along the Deer Lodge-Anaconda county road for this show place. It is adjacent to a little lake, in full view of the road traversed by tourists. By this time next year it will be producing chicks ready for fall planting. The work will be in charge of J. L. Hendricks, game farm specialist, who for years has been associated with the work in Oregon. Sheds and rearing pens are soon to be erected, with a residence for the superintendent and connections for the natural spring water that flows through the state institution grounds.

The site for the game farm has been

Summer Day

By Cassandra O. Phelps, Hobson, Mont.

Few sounds there are to break the stillness here:

The splash of silvery water over pebbly bed,

Or whirr of passing dragon-fly assails the ear,

Or hum of gauzy wings unlimited.

I pause with rod upheld but stay my hand,

The line hangs limp despite the finny beauty's dart;

The river ripples on its way. Spell-bound I stand

And listen to the beat of Nature's heart.

selected after serious consideration of all sites. Members of the Commission, accompanied by Gene Simpson, superintendent of the Oregon Game Farms, Mr. Hendricks, State Engineer James and other experts have viewed the sites and selected that at Warm Springs as the most desirable. On the advice of Gene Simpson, the Montana Commission took action, and there are few men better known in the game bird propagation work than Gene Simpson.

Montana sportsmen are interested in the work of this specialist. In a recent issue of American Game, Mr. Simpson sets forth his views on the rearing of game birds in captivity as follows:

"When we speak of the propagation of game birds, we naturally have in mind the Chinese Ringnecked, English Ringnecked and the Mongolian pheasant, for no other game bird lends itself to propagation in captivity in such numbers, yet retaining that wild instinct so necessary to its preservation in the wild state.

"It is to the state of Washington rather than to Oregon, my native state, that I owe my start in game-bird propagation. Along about 1905 to 1910 I was raising and selling Chinese pheasants to practically every county in the state of Washington. In 1904 I began shipping pheasants to other states for stocking purposes—Kansas, New Jersey, Illinois, Ohio, Colorado, Pennsylvania, Michigan, Missouri, Utah, Nevada, Idaho, the Dakotas, and to a W. M. Benton, Cedar Falls, Iowa, whose birds, I understand, were used later in stocking the state of Iowa.

"No pheasants were to be found in that part of Oregon lying east of the Cascade Mountains until after the first state game farm was established at Corvallis, Oregon, late in 1911. The first pheasants were shipped to eastern Oregon in 1912. Today, one eastern Oregon county, Malheur, an area about the size of Massachusetts, is so well stocked with pheasants that a continuous open season for October has been granted, while adjoining counties in game district No. 2 permit hunting during this period two days a week.

"From the Oregon state game farm we annually release about 20,000 pheasants. Both the intensive wire-covered pen and the open field methods of rearing are used, each system having its merits and demerits. From the Corvallis farm practically all birds are placed out on refuges in bunches of five to eight hundred birds in brood coops when about ten days old. A caretaker is left with the birds until they are weaned. Last year we successfully hauled day-old pheasants fifty miles by truck in specially constructed boxes provided with small hot-water tanks in the bottom. By refilling the tanks with hot water from the automobile radiator occasionally, birds could,

Yip-Yap Meets Fate



SENOR YIP-YAP, the wily coyote, is finding it increasingly difficult to escape vigilant sportsmen and cattlemen. This big fellow was trapped by Frank Lindau on his ranch near Columbus, Mont. The picture is submitted by L. C. Hubner of Columbus.

At The Water Hole



HERE'S a splendid picture of a deer taken during the winter in a water hole near Missoula, browsing on moss and water cress. The snow banks around the water hole indicate the heavy fall.

no doubt, be safely transported several times this distance.

"Still another method was tried out last season that, from the results obtained, warrants further experiments. Pheasant eggs from the Corvallis farm were supplied to a woman residing on a game reserve in Marion county, who was paid three dollars per day to devote her entire time to the hatching and rearing of the pheasants. The necessary setting-hen nests, brood coops, feed, etc., were furnished.

"From 1,733 eggs set, 1,371 birds were hatched, or 79 per cent, and one thousand birds raised, or 73 per cent. It cost to raise these thousand birds to weaning age \$983.25, or less than one dollar each, as follows: Labor, \$360; feed, \$170; settin'-hen expense, \$20; crediting the Corvallis farm with 25 cents per egg for the 1,733 eggs furnished, \$443.25. A better percentage of eggs were hatched at the Eugene farm last season—87½ per cent of live birds from the total number of eggs set—but the birds were raised on the Marion county reserve at a less food cost.

"We think a lot of the Chinese ring-necked pheasants first brought to Oregon, direct from China, in 1880 by the late Judge O. N. Denny. The State Game Commission of Oregon pays Mrs. Denny, Judge Denny's widow, a pension of \$50 per month from the state game fund, and will continue to do so as long as she lives. Mrs. Denny resides in Portland and is now in her 91st year. It has been suggested that a monument be erected on the exact spot in Linn county where the pheasants were first released, commemorating the most successful importation of a game bird from one country to another in the history of the world, and in honor of Judge Denny, whose foresight and generosity made it possible.

"It has been claimed that the United States now has more pheasants than all of China. Pheasants were shipped from the Pacific Coast this year to the government experiment station in Colombia, South America. After four centuries, canaries are now being imported into the Canary Islands, where wild canaries were first found. At some future time China may have to be restocked with Chinese pheasants from the United States.

"It is possible that we are overlooking a wonderful opportunity in not taking up the breeding in captivity of the mountain quail, the largest members of the quail family and a native of the Pacific Northwest only. This wonderful little game bird, but a shade smaller than the Hungarian partridge, has been greatly reduced in numbers during the past generation. While not breeding in captivity as readily as the pheasant, they can be yarded several pairs together during the nesting season. This fact alone makes their propagation in captivity possible, for it is even more difficult to distinguish the sex of the mountain quail than with the Hungarian partridge. A few broods of mountain quail at the state game farms, second and third generations in captivity, attract more attention from eastern visitors than any other one variety of game birds.

"Our experience in raising Hungarian partridge in captivity has been exceedingly interesting, if not entirely successful. Three years ago a few birds were raised at the eastern Oregon state game farm, Pendleton. After this initial experience, we considered that when a Hungarian was hatched it was as good as raised. The hot, dry hatching season at the Pendleton farm must have been to their liking, for it is in this district that the birds have done best in the wild state. With the idea of getting the partridge established in western Oregon, our efforts with these birds have been mainly at the two state game farms in the Willamette valley.

"Perhaps the greatest problem to be solved by the partridge breeder is the proper mating of the birds. Even when allowed to choose their own mates, an apparently mated pair will frequently have a falling out and produce unfertile eggs, or none at all. The male will even kill his mate, but this often happens with pheasants in captivity, the ornamental varieties especially.

"As is well known, Hungarian partridge mate in pairs, both in the wild state and in captivity. Many authorities claim the mating is for life, but their matrimonial fidelity has been greatly exaggerated. After the laying season, we have leg-banded a number of pairs that had produced fertile eggs and yarded them together during the winter. A little less than 40 per cent went back to their previous season's mates. Evidently some pairs were constant in their affections, but the prevailing conception of all partridge as paragons of marital constancy will have to be modified.

"When possible, it is best to let the birds themselves select their own mates, and it is generally believed that the female does the selecting. At any rate, the eternal triangle enters into their family life, and the addition of an extra female to a pen of mated birds creates a family disturbance that invariably ends in one female killing the other.

"Last spring the partridge were so slow in mating up at the Eugene farm that all unmated birds were forced mated. Twenty-three pairs did not lay an egg. At the Corvallis farm, out of five pairs forced mated, three pairs produced fertile eggs. One hen was given a mate on March 3rd, but the male died; a second mate was given to her on April 20th, after which she produced 26 fertile eggs.

"Another pair were allowed to set on seventeen of their own eggs, but after a few days of incubation the nest was destroyed and the eggs scattered to the four corners of the pen—probably just a little family argument as to who was to have the afternoon off, or on, as the case might have been. Being confined in a pen 12 feet square, they could not 'tell their trouble to the judge'; so they patched up their grievances and went back to housekeeping again, the hen laying 18 more fertile eggs the same season.

"With such varied results during the short period of our experiments, we are kept in suspense wondering what they will do next. So far, the best record for laying was made at the Eugene farm last year by a female partridge hatched in 1927, laying a total of 56

eggs. The previous year at Corvallis one hen laid 52 eggs, and another 50 eggs. These two pairs were not separated during the winter.

"The hen laying 50 eggs that year laid but 12 last season, and only three of these were fertile. The hen laying 52 eggs laid exactly the same number the following year, and as a reward for her record of performance was allowed to set on nine of her own eggs. With the assistance of the male, all were hatched, and just then the fight began to see who should have possession of the brood, the male evidently believing that he should be useful as well as ornamental. When discovered, the female had taken the count and was removed from the pen, but has since fully recovered.

"As to the brood of young birds, one was killed during the family quarrel, but the remaining eight were brooded and cared for by the male to perfection. When raised with common bantam hens, young Hungarians are exceptionally tame until nearly full grown, but this brood reared by the Hungarian cock bird was no tamer than a brood in the wild state. In fact, two did gain their liberty by going out through the two-inch-mesh wire-covered pen.

"There is no question but that a larger percentage of birds can be raised to maturity, even in captivity, by the partridge themselves than can be raised with bantams or other chicken hens. Our greatest loss was during the cold, cloudy weather the latter part of June, but little loss was suffered after the weather turned warm. Sunshine is their salvation. At the Corvallis farm last year 150 partridge were raised to maturity from 267 birds hatched, or 56 per cent. So far this is our best record.

"The Hungarian has been accused of killing off or driving away the Chinese pheasants from districts where Hungarians have been introduced. This story is not borne out by facts. It has been found that an open season on partridge, by diverting the attention of the hunters, protects the pheasants.

"Umatilla county, Oregon, the best Hungarian country in the state, also has an abundance of pheasants, proving that both birds can and do occupy the same territory in harmony.

"It is to be regretted that our native grouse—the entire grouse family, in fact—can not or at least so far have not been bred in captivity successfully.

"The breeding of pheasants is now so well understood and so certain in results that before it is too late some method should be made to obtain at least a few of the wonderful, but almost unknown, rare varieties of pheasants yet to be found in remote corners of the world. The successful importation and propagation in captivity of any one of a number of species would be ample reward for years of endeavor.

"In conclusion I wish to say that you must look to the game breeders of this country for your future supply of upland game birds. Restraining laws alone will not increase, or even maintain, the supply. We must produce if we would destroy. Propagation in captivity brought the buffalo back from the verge of extinction, and might have saved the passenger pigeon had a single pair been left to the present generation of game bird breeders."

Scientists at Georgetown Lake



C. H. Clapp

BIOLOGICAL research work on Flathead Lake, made possible through cooperation of the Montana State Fish and Game Commission with scientists of the state university, is nearing the stage of conclusion and immediate attention is now being paid to problems at the famed Georgetown Lake, near Anaconda. The work is under supervision of President C. H. Clapp and Prof. Morton J. Elrod of the state university at Missoula and under general surveillance of Melvin A. Brannon, chancellor of Montana's greater university. A preliminary report of the findings of the scientists published in the June edition of MONTANA WILD LIFE has gained such popularity that calls are reaching the Department for additional copies from all parts of the nation.

In entering into this scientific research work, the State Fish and Game Commission of Montana has established a precedent in the nation. Facts derived will be of vast assistance in the planting and rearing of game fish. At the mouth of Flint Creek, which empties into Georgetown Lake, the Commission has established the largest artificial spawn-taking station in the world. Here the spawn is artificially taken from the trout and grayling to stock the 14 state fish hatcheries and to provide fingerlings with which to restock state streams and lakes.

President Clapp of the state university summarizes the work at Flathead Lake as follows:

"During the season of 1928 the work on the fish and fish food of Flathead Lake by the members of the state university faculty cooperating with the Montana State Fish and Game Commission gave the following results:

"One hundred and twenty-seven soundings were made. The greatest depth recorded is 329 feet. The illumination from the sun, reduced to foot candles, was determined to be 140 feet deep. The temperature at the lake bottom was found to be 39.4 degrees Fahrenheit. Samples of water taken at varying depths, from surface to 300 feet, by specially designed apparatus from eleven different stations at representative localities, were chemically analyzed and the plant and animal life was studied.

"Sufficient oxygen for fish life was found at all depths. The lake water would be classed as alkaline, but not of sufficient alkalinity to affect fish. Mineral matter occurs in very small amounts (85 parts per million); almost

identical results were obtained from three different places.

"About 150 species of microscopic plants were recorded and sketched in outline. They belong to 81 genera, 35 of which are green algae, 15 are blue green algae, 13 diatoms, nine dismids, and eight flagellates. The diatoms are most numerous, the flagellates next. Several species of diatoms were found at depths of 300 feet. A few counts of organisms reveal as many as 58,200,000 of a single species (Dinobryon) in a cubic meter of water. Life, however, is scarce as compared with many lakes that have been studied.

"About 100 species of animals have been recorded, representing all the major branches of the animal kingdom except those which are exclusively marine. The animals were taken from the shallow, reedy bays, from the open lake, and from the muddy bottom where the water is deep. Animal life is less abundant than in some other lakes. However, two counts, in July and August, reveal a total of several million microscopic animals of different species in a cubic centimeter of water.

"From data obtained in previous years the food of the different species of lake fish was given. An analysis of 500 stomachs was made, 119 from squaw fish, 48 from suckers, 121 from bull trout, 38 from native whitefish, 20 from black bass, and small numbers from other species. From this study a definite knowledge of the food of the different species of fish was obtained.

"The studies on the lake micro-organisms, the bacteria of the water, the lake currents, and on distribution of fish, are being continued during the present summer. In addition, some studies are being made at Georgetown Lake. In this work five men are engaged."

How much will forest land be worth 50 years hence if planted under the forest crop tax law now? Why are our prairie chickens disappearing? Does carp seining damage lake bottoms? What kind of fish will live in what kind of waters? These and many other questions of a similar nature will be answered by different scientific projects now under way in Wisconsin, which state followed Montana in biological research work in its woods and waters. Six different types of scientific research are being conducted in conservation problems this year, according to a statement made by the conservation commission.

Growth study of trees is being tabulated by means of which future growth can be estimated. In connection with the soil and forest cover survey, Mr. Bordner's men are also making a game survey which will provide valuable information for the state department of game. They are also charting many lakes for which hitherto there have been no accurate maps.

This study of lake shores will yield information as to the type of water vegetation in the lakes, which will be

very valuable for the department of fisheries in its work of planting fish. Information of value to the resort industries of the state will also be forthcoming from this survey, by the charting of the beaches and the type of the shores of the different lakes.

Dr. E. A. Birge and Professor Chauncey Juday, both of the University of Wisconsin, are continuing their study of fish foods this summer at Trout Lake, in Vilas county. The results, when available, will be invaluable to the department of fisheries in fish planting.

Too little information has been available in the past to make possible the best results in planting fish, but in the future as the kind of food different varieties of fish eat and the lakes in which the food is found are known, one great element of chance in the artificial propagation of fish can be removed.

The prairie chicken problem has been a thorn in the side of many sportsmen for several years. This summer the department of game and the research bureau of the Wisconsin commission have taken one of the leading game bird authorities in the world to Wisconsin to discover just what is the trouble with the game birds. He is Dr. A. O. Gross, professor of ornithology at Bowdoin College, Brunswick, Maine. Dr. Gross has conducted game bird investigations in many parts of the United States, Mexico, Central and South America, and as soon as he finishes his work in Wisconsin this summer he will go to Labrador for further work.

Whether carp seining is deleterious to lake bottom vegetation will be solved this summer when the present research project into this problem has been completed. This study is being conducted in the Madison Lakes of Wisconsin and it began as soon as carp seining opened this spring.

A comparison is being made of the growth and welfare of vegetation and other matter in both seined and unseined areas of the Madison Lakes so that comparable results will be obtained. The men doing this work are from the department of botany at the university.

The size of mesh, length of nets, methods of dragging and lifting nets, and the results obtained from seining at different times of the year are all being closely observed this year, in the hope that better methods can be discovered to help in the carp eradication program.

The research bureau of the Wisconsin commission, the duty of which is to investigate all problems of disease in birds, fish, or trees, is made up entirely of scientists who are serving without pay or recompense of any sort. University men and federal government scientists make up most of the board, which is headed by Dr. Merritt L. Jones of Wausau.

Nature Outwits the Photographer

By FLOYD L. SMITH

WHEN Mother Nature places her sheltering arm around one of her own, reaches out in some manner unknown to us ordinary folks and aids in outwitting the foxy feller, it's always a good story.

Here's the story and also the photographs, so believe it or not.

While the State Fish and Game Commission is completing plans for the creation of the state game farm at Warm Springs, the protection and propagation of Chinese pheasants and Hungarian partridges continues. Last year a two-day open season was declared on the Chinese pheasants while the season still remained closed on Huns. Thousands of sportsmen predicted a slaughter of the multi-colored Orientals because of their apparent tameness. But when noses were counted after the short open season, these same sportsmen were willing to agree that the wily Chink is capable of taking care of himself and his family.

The Mongolians clutter up a feller's way in the Helena valley during the spring and summer. But when a shotgun shows up, they're elsewhere. But that's getting away from the story.

George P. Mason, representative of Lewis and Clark county in the last two legislative sessions; Tom Herrin, well known Helena valley rancher, and Robert Davidson, Helena photographer, are the heroes or villains of this story of what might have been. Herrin and Mason were strolling around the open pasture on Tom Herrin's beautiful ranch, swapping stories and taking the air, when they stumbled upon a clump of spring flowers, dry weeds and bunch



If the spread of that long tail and the fight in the eye of the Old Girl could tell how she just hated that camera man, it wouldn't be fit to print.

grass and in the midst of the cover squatted a female Chinese pheasant.

They shooshed.

Then they approached with velvety tread.

Mrs. Chinaman sat tight. She refused to budge.

They ventured closer. Still no sign of fear from the biddy.

Finally Mason grew bold. He stretched out his hand and it was promptly pecked. Mrs. Chinaman couldn't be bothered by the interference of any strange lawmaker to whom she had not been properly introduced.

The two sportsmen toyed with the hen pheasant for some time, and, according to Mason, "we had to goose her to make her get off the nest." In the nest were 14 eggs. When she was finally induced to step aside, she declined to fly and surveyed them from the weeds two feet away. They marked the spot and when Representative Mason returned to the city, a few miles away, he confided in the editor of MONTANA WILD LIFE.

Here's where Boh Davidson, the photographer, gets into the picture. Boh was instructed to accompany Mason to the nest, take a series of pictures and report results. His mission was successful and he went through the same ordeal as did Herrin and Mason. Several of the splendid pictures are reproduced with this article.

But hopes were not yet realized. Davidson, like the other sportsmen, had become thoroughly interested in watching the Chinese incubator in action. Day after day he made trips to the nest—and the biddy paid no more attention to him than a passing horse fly.

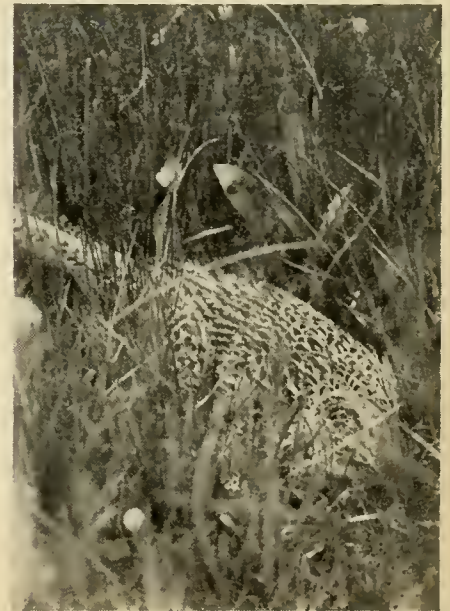
"Get a real picture, Boh; get a picture of the little Chinamen just breaking through the shell," was the word passed to the photographer. So Bob went about carrying out instructions. Trip after trip he made to the nest to watch progress. The 14 eggs remained with no sign of progress but with the



Here's Mrs. Chinaman in the tall grass keeping close watch of her nest while the photographer ventures near.



And here's the hidden nest with its 14 eggs that later produced 14 little striped Chinese chirpers.



Here's another splendid view, taken in the early morning with Mother Pheasant still doing the incubator stuff.

Chinese mamma still sticking to her chores.

On the morning of July 2 the photographer inspected the nest and found everything hotsy-totsy, just as on previous visits. The next morning he made his regular visit. He was horrified. In the nest he found 14 empty egg shells. The Chinamen had hatched during the night and the biddy had outfoxed him. He walked through the pasture all day and found not a sign of the covey. Dame Nature had completed her work.

The Neglected Lyre

By STODDARD KING

BARDS are enamored of April and May,
Write of their beauties in ballad and lay,
Give, in their way, a vociferous cheer
For these particular months of the year,
Knowing that April is rainy and breezy,
May often muddy and floody and sneezy.
Yearly I'm bothered to understand why
Never a poem is penned to July.
Poets are terribly partial to June,
Riming it sweetly with tune, moon and soon,
Mentioning gently its output of roses,
Praising its brides and their pre-nuptial poses,
Tactfully silent regarding its heat,
Calling it balmy, enchanted and sweet.
Poesy's well is left dusty and dry—
Nothing remains for a song of July.
Let us then hasten with tuneful oblations—
Poets, we know, have no summer vacations—
Let us write stanzas that tingle and blaze,
Warmer than April's, more glowing than May's;
Let us spin rimes by the ream and the mile,
Hymning a month that has flavor and style,
It can be done if we earnestly try—
Bards, do your duty—sing songs of July!

Mamma Chink Alert



She's all fussed up over the effrontery of a snooping picture man who had the crust to point a black box at her.

Sanctuary at Fort Keogh

WITH the cooperation of the State Fish and Game Commission, which has expended about \$17,000 in creating the largest warm water pond culture station in the world at Fort Keogh, the federal government has created a 57,000-acre sanctuary for birds in the heart of the famed cattle country of eastern Montana. The rights of the state at the fish station, where pike, catfish, sunfish and others thrive, will not be molested, according to the agreement with the government. The lands surrounding the pools, however, will make up the sanctuary for migratory waterfowl.

The sanctuary on the site of the former Fort Keogh military reservation near Miles City, Montana, to be known as the Fort Keogh Bird Refuge, has been created by President Hoover by executive order. Administration of the refuge will be by the Bureau of Biological Survey of the United States Department of Agriculture. The reservation is under the control of the Bureau of Animal Industry of the same department, as a range livestock experiment station, and its use for this purpose will be continued as heretofore.

The move to establish a federal bird refuge at this point was inaugurated by the Montana Sportsmen's Association, the Forest Service, and Montana members of congress, in cooperation with Bureau of Animal Industry officials in charge of the experiment station.

The project was approved by the Montana Fish and Game Commission and by the Custer Rod and Gun Club of Miles City.

Within the area is a 70-acre artificial lake used by the Montana Fish and Game Commission, in cooperation with the Bureau of Fisheries and the Bureau of Animal Industry, for the production of warm-water fishes, particularly black bass. The establishment of the bird refuge will not interfere with the fish-culture operations.

The land area of the refuge is inhabited principally by sharp-tailed grouse and ringnecked pheasants, which are reported to be on the increase there. The artificial lake forms an important resting place for the waterfowl and other migratory game birds of the region.

Although there has been little hunting on the area since it has been operated as a livestock experiment station, officials believe that the complete protection of birds there will result in material increases in their numbers, thus greatly benefiting game-bird hunting in the adjacent region.

While the refuge is primarily under the jurisdiction of the Bureau of Biological Survey, it will be administered in cooperation with the Bureau of Animal Industry, and one or more of the livestock experiment station employees will be designated as wardens to enforce federal wild life reservation laws.

The Biological Survey regards the Fort Keogh refuge as an important

unit in the system of refuges that gradually is being built up by that bureau for the maintenance of migratory and other birds.

An Essay on Ducks

SOME wag has slipped this essay on ducks, a grammatical and zoological masterpiece, to Merle D. Chatfield, Helena sportsman, and Chat has passed it along to MONTANA WILD LIFE:

A schoolboy assigned to write an essay on ducks submitted the following:

"The duck is a low, heavy-set bird, composed mostly of meat and feathers. He is a mighty poor singer, having a hoarse voice, caused by getting so many frogs in his throat. A listerine bottle label would cure him, if he would swallow the paper and digest the reading. He carries a toy balloon in his stomach to keep him from sinking. The duck lays green eggs which are sometimes hatched out by green parrots, and the baby ducks become jew-ducks. The duck has only two legs, and they are set so far back on his running gear, by nature, that they come pretty near missing his body. The feet are a turbine wheel, when going forward, in the water, but used as a brake when he lights in a wheat field; they are two jumps ahead of his nose. Some ducks, when they get big, have curls in their tails, and are called drakes. Drakes don't have to set and hatch, but just loaf around, go in swimming, and eat everything in sight. If I was a duck I'd rather be a drake. Some ducks shut their eyes when eating, and you can feed them soap, chewing tobacco, corks or candy. That's the reason people do not like to eat their eggs. If they eat too many worms and get sick, the game warden will tell us not to shoot them or eat the meat."

She's in the Dumps



Drooping spirits marked the disposition of the Chinese pheasant hen on another trip to her nest. She is sitting tight, however, determined to protect the anticipated covey.

MONTANA STATE FISH AND GAME COMMISSION

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"LOST FAWNS"

EACH year, about this time, the Department is besieged with requests from individuals from the deer country for permits to retain fawns which they claim have been deserted by the mother deer and found by them in the woods. The possibility of such desertions is so remote that the Department will hesitate to consider the issuance of permits for the keeping of "lost" fawns in the future. The only possible excuse for picking up a fawn is when the finder knows positively that the mother of the fawn has been killed, which might happen on a heavily-traveled road, or where the fawn itself has been injured in some way.

Ordinarily the doe will leave its fawn in some sheltered spot while it ranges the adjacent country. The doe doesn't forget where its fawn is left, nor does the fawn leave the spot, if undisturbed. A fawn thus left by its mother has little or no fear of human beings and will permit them to approach and even fondle it. Once handled by humans it will follow them and naturally stray from the spot where the doe left it, when it actually becomes lost.

Persons observing fawns in the woods should appreciate their good fortune in seeing one of Montana's most beautiful bits of wild life and not jeopardize the fawn's future by attempting to handle it or reduce it to personal possession. The law does not permit taking of fawns in this manner any more than it does the shooting of adult deer in the summer time.

Another angle not considered by the finder is that a fawn is bound to grow into an adult deer and a full grown deer, especially a buck, can cause his erstwhile owner plenty of annoyance and liability, unless he is able to erect a ten-foot fence around a considerable area in which to keep his exuberant pet.

The person who wounds with words is usually too weak to strike a blow.

CATS NOW HAVE TO WEAR BELLS

THE thought in this clipping, from the Kenton (Ohio) Democrat, is a good one, and aside from just bringing a smile to the reader should be given some serious thought. The common house cat, in most cases, is a persistent bird hunter, recognizing no "closed" season, and taking a tremendous toll of song and insectivorous birds as well as a few game birds every season:

"Sneaking cats which have a craving for bird luncheons are going to have trouble in Riverside, Chicago suburb.

"Taking a cue from fable-land, Riverside passed an ordinance twelve years ago requiring that tabby always wear a bell around its neck. This year, say the city council members, that ordinance is going to be enforced.

"Either puss will tiptoe a warning to feathered songsters or the cat will be impounded and if not claimed within five days his nine lives are to be snuffed out in one stroke."

About 92.7 per cent of the world's big jobs are held by men who never wonder whether the socks harmonize with the tie.

MORE FORESTS, MORE GAME

MONTANA sportsmen, fully aware of the prevalence of dangers of forest fires, are alert to the need of caution. Let us drag out the whole red record of forest fires in this country that it may warn us to action. According to government figures there occurred in the United States during 1927 a total of 158,000 forest and woodland fires. They burned over 38,000,000 acres. These figures do not include Alaska. It may well be marked that in the southern states alone in 1927 no less than 127,000 fires were reported and the aggregate area burned over ran to the staggering total of 36,290,000 acres. Until that record is wiped out what real hope have we of lasting and complete forest and game restoration in states which offer probably the best opportunity for combined forest and game production of any section of our country?

Don't spend so much for the diamond that you can't afford a manicure.

COMMUNITY FORESTS INCREASING

WITH 1,055,658 additional acres of forest land in the United States brought under state administration in the last three years, the total area of state forests now stands at 6,556,735 acres, according to reports to the Forest Service, United States Department of Agriculture. The greatest extension in state forest area during the three-year period since the end of 1925 was reported by the state of Washington, which added 1,200,000 acres. Pennsylvania added 167,788 acres to its 1925 total, and Michigan was a close third with an increase of 167,000 acres. Three states—Delaware, Georgia, and South Carolina—which had no state forests three years ago, reported forest lands under state administration at the beginning of this year.

Three years' growth in state park areas added a net area of 67,834 acres to the 1925 figure, bringing the total area of state parks to 436,077. Municipal and county forests and parks increased in total area from 697,447 acres at the end of 1925 to 726,577 acres at the beginning of this year. The aggregate area of forest land owned by states, municipalities and counties in the United States on January 1, 1929, including other forest land beside that in forests and parks, was 12,136,945 acres.

Yesterday's highest point of achievement should be the starting point for today.

GAME COMMISSION OWNS 131,278 ACRES

PENNSYLVANIA'S game commission has taken title to a total of 131,278 acres, the cost of which, not including title examinations and surveys, is \$441,943. The holdings constitute 22 blocks of land, each of which will be known as state game lands and given a serial number. These lands are located in 21 counties. Primary refuges

are now established in 12 of the 22 blocks. Ten of the blocks, at present, are in their entirety open to public hunting. The board has made no plans for the creation of primary refuges within these ten blocks. Lands conveyed to the commonwealth during 1928 include tracts in Bradford, Tioga, Monroe, Venango, Carbon, Bedford, Westmoreland, Chester and Berks, and Elk and Jefferson counties, comprising 38,633 acres, at a cost of \$157,004. A total of 56,130 acres, costing \$236,969, are now under contract for purchase. These areas are located in Venango, McKean, Elk, Susquehanna, Sullivan, Cameron, Fayette, Bedford, Bradford and Lancaster counties. Those situated in Venango, McKean and Elk counties will be conveyed to the commonwealth within a few weeks.

Paul Revere was the first radio fan. He did his broadcasting with one plug.

NOT GUILTY, IS THEIR PLEA

NEITHER hawks nor owls are as black as they are sometimes painted, reads a recent bulletin of the United States Department of Agriculture. About a year ago the game commission of Yakima county, Washington, established a bounty on creatures supposed to be destructive to useful birds, especially upland game birds. Arrangements were made for the preservation of the stomachs of hawks and owls killed and presented for bounty. Of these 121, including five kinds of hawks and two kinds of owls, were forwarded to the Biological Survey of the United States Department of Agriculture for study. Here are some of the findings: "Of 45 stomachs of Swainson hawks (common in Arizona and New Mexico) 40 containing food held about 90 per cent ground squirrels, the remainder consisting of snakes and grasshoppers and other insects. Of 31 stomachs from red-tailed hawks, 27 held food, of which 83 per cent was ground squirrels, 6 per cent rabbits, 4 per cent meadow mice, and the remainder snakes." So the account goes all the way through. These hawks and owls, with a bounty on their heads, had all been preying chiefly upon ground squirrels, rabbits, mice and other species so destructive in the western states that the federal government and the states concerned have been cooperating for years in campaigns to control them. No game birds whatever had been eaten by any of the 121 hawks and owls killed, and only three birds of any kind. As a result of the findings of the Biological Survey, bounties on hawks and owls are no longer paid in Yakima county.

Unless you're ashamed of yourself now and then, you're not honest.

MONTANA DOING CONSTRUCTIVE WORK

L. W. T. WALLER, JR., writing in the monthly DuPont circular, has this to say of steps being taken by Montana's State Fish and Game Commission:

"Reports from Montana indicate excellent work being done by the Montana State Fish and Game Commission. At its last meeting the Commission decided to establish a game farm and instructed Chairman T. N. Marlowe to go ahead with the arrangements. This farm will not be placed in commission this year, as the breeding season is already here, although all the necessary preliminary work, such as the selection of grounds and building of coops, can be done. Getting a good start will place them in a position to operate early in 1930.

"Conservationists generally agree that education and the selling of the idea of conservation to sportsmen and others is one of the first essentials and this is recognized in Montana, the Commission having taken up the idea of promoting 'out of doors' first to their own people and then to the United States as a whole. To this end it is understood that they will contract with William L. Finley to make a series of motion pictures of wild life in Montana, these to be used for display among the sportsmen's organizations and others interested within the state.

"Montana was the second state in the Union to pass an enabling act to secure the benefits of the Norbeck-Andresen Bird Conservation Act, the first being Kansas, whose enabling act was approved February 26, and Montana's on March 1."

SANCTUARIES MEAN MORE GAME

CONSERVATIONISTS generally admit that sanctuaries, such as those being established by the Montana State Fish and Game Commission, where birds and game can breed unmolested and where migratory wildfowl can find a feeding and resting place, are one of the very essential things in any plan looking toward the restoration of game to coverts. This sanctuary idea is behind the great success attained by Pennsylvania and is being spread to all parts of the United States. A sanctuary to be in all respects what the name implies must be a sanctuary in fact as well as in name. Merely to mark down an area on a map and call it a sanctuary does not make it so. Wild life within that area must be protected not only from man but also from predatory animals and birds. To legislate a sanctuary—with no other steps taken to make it a sanctuary, in fact—is to invite disaster. Knowing the area involved to be a sanctuary in name prevents the law-abiding citizen from using it and leaves the poacher free to do his worst. Then again increase in game inevitably means an increase in vermin.

While sanctuaries are or should be some care to the states operating them they pay wonderful dividends in the end and their establishment is beyond the experimental stage. No less a conservationist and sportsman than Theodore Roosevelt recognized their value and advocated their use. In his "African Game Trails" he says:

"There should be certain sanctuaries and nurseries where game can live and breed absolutely unmolested; and elsewhere the laws should so far as possible provide for the continued existence of the game in sufficient numbers to allow a reasonable amount of hunting on fair terms to any hardy and vigorous man fond of the sport, and yet not in sufficient numbers to jeopardize the interests of the actual settler, the tiller of the soil, the man whose well-being should be the prime object to be kept in mind by every statesman. Game butchery is as objectionable as any other form of wanton cruelty or barbarity; but to protest against all hunting of game is a sign of softness of head, not of soundness of heart."

VIOLATOR ONCE PAID WITH LIFE

BACK in medieval days game law violators were punished with dispatch and cruelty. The feudal lands were divided into preserves on which the lord and his guests maintained exclusive hunting rights. The peasant who shot a deer, or trapped a grouse on the baronial property was adjudged guilty of a felony, and often forfeited his life.

The law rested in the hands of the lord, who could inflict punishment as he saw fit. Very often the poacher was flogged for minor offenses, or strung up by the thumbs. If he was considered incorrigible, several fingers were chopped from his right hand so he could no longer use the bow and arrow.

Poachers were burned at the stake or beheaded for offenses considered trifling today, and punishable by a \$25 fine. The killing of a deer was the severest violation. The medieval noblemen took their sport seriously, and valued the birds and animals in their forests more than human life. If a serf killed another he was often let off with a reprimand. But if he killed a boar in the forest of his lord, the crime was unpardonable.

In England severe poaching laws persisted until several centuries ago. Unwilling to face the consequences of poaching, William Shakespeare fled from his native village of Stratford-on-Avon. It was charged that he killed a deer on the estates of Sir Thomas Lucy, a Warwickshire nobleman of great power. When Shakespeare wrote the "Merry Wives of Windsor" he evened up the score by making the nobleman a very undignified character in the play.

Napoleon Bonaparte was harsh and severe in his methods of teaching the people conservation. The following message, sent by Napoleon to one of his government officials, gives an inkling of his attitude:

"Monsieur le prefet," wrote the emperor, "I am informed that a number of forest fires have broken out in the department the administration of which I have confided to you. You will please have the individuals convicted of having set them shot immediately. Also, if fires break out again, I will see to giving you a successor."

Our Mallard Family

A True Story for Boys and Girls Written by ESTHER S. HALM, Missoula, Mont.

TWO YEARS ago, in a bottomless box with a scattering of straw on the ground, sat a small Rhode Island Red hen. Beneath her soft, downy breast feathers were seven bluish white eggs, which had been rescued from an abandoned nest along the creek bank. Four long weeks our brooding hen covered these wild eggs, to be rewarded at the end of that time with six fluffy little creatures with broad bills. The mother hen was proud of her "chicks" and led them about the yard, all the time clucking and scratching that they might eat and grow. But only one little duckling understood the language of the old hen. When she would scratch and say "cluck, cluck," only Billie would eat what she had found for them. They were all fed regularly three or four times a day, but Billie was the one that flourished and grew so much faster than the others.

As the days went by they would stray from the old hen and waddle into the little pool in a corner of the chicken yard, and swim about, the excited mother pacing back and forth around the edge, clucking and calling to her babies, but not daring to get her feet wet. The little family all the while was unmindful of the worries of their mother. They would swim about so contentedly, splashing and diving. It was fun to watch them in the evening when the mosquitoes would fly over the water. Ducklings would be darting forward, jumping, splashing, everywhere.

Almost daily they would follow the trickle of water that drained from the



Here's the happy Mallard family in the Halm back yard. Note the reflections in the cool water.

little pool, wriggle through the wire netting and dabble in the puddle outside the fence. Every hole of unusual size in the fence had been plugged but the persistent little ducklings would squeeze through, and would then be unable to get back without assistance. Here it was that one by one the little fellows met their fate, until only Billie survived.

Located as we are only twenty minutes from the center of Missoula, the little mallards had fallen prey to cats and dogs of the whole vicinity. Billie, having grown so much larger than the others, had found difficulty in squeezing through the mesh of the poultry fence, until she had given it up and was content to stay in the yard and follow the hen about, eating everything in sight.

Billie thrived and grew tamer every day. One of the children had called her Billie and the name had stuck.

When a nice fat worm was found on a rose bush or aster, Eddie or Ruth would run directly to Billie and hold it up to her. It wasn't long until they had taught her to speak. She would stand on her tip-toes, and with her broad bill extended upward, would "quack, quack" for the favored morsel.

As she grew older she was allowed at times to leave the chicken yard and wander about in the garden, or rest beneath the raspberry bushes, when the children could watch her so no harm would befall.

One day when Eddie was doing a little hoeing in the garden, with Billie tagging along, it was discovered that Billie possessed a very marked fondness for angleworms.

From that time on the garden held a certain fascination for the whole family—and even friends marveled at the speed exhibited by Billie in devouring the worms. Eddie was only seven, but he was a great help in weeding time.

Pulling the larger weeds by hand always proved an extra pleasure, for, nestled among the roots, would be an angleworm, or two, or three. Billie was always on the alert at his feet lest some choice bit escape her.

The fall came, and a hunter friend brought us a wounded drake. His only

injury was a broken wing and Bobbie soon recovered. He was rather shy at first, but with Billie always at our feet, Bobbie soon learned that we were his friends and that there was nothing to fear.

Billie and Bobbie became the best of pals. Billie would wander about the yard with Bobbie close behind. The ducks, being wild by nature, always spent the nights in the open, but as the wintry days and nights came on, we carried Billie in to the chicken house at night, and Bobbie was sure to follow.

It took only a couple of evenings for them to learn that this was a place of shelter. When the blizzards raged we had to shut up the chicken house and they were all closed in.

Then we experienced a little difficulty. Chickens, being naturally greedy, ate every kernel or wheat or corn, or other food that was put out. The ducks would grab a bite but as soon as a chicken came their way they would move on and stand around helpless.

Then a bright idea occurred to us. Why not put the ducks' food in the water? We tried it. Immediately both heads immersed. Such sizzling and guzzling. The wheat disappeared like magic.

An uneventful winter went by.

One day in early spring, in one of the small coops about the yard, we discovered that Billie had laid an egg. The nest was made mostly of straws and some of last year's weeds, lined with lovely downy feathers from the hopeful mother's breast.

The next day there was another egg.

We watched the nest daily, quite concerned in Billie's new interest.

After laying 16 eggs, Billie was seen no more in the yard. Bobbie was al-



If you'll look closely behind Billie and Bobbie, you'll see the little black balls of down that are their children. All huddled up.



Ruth Halm and her pet mallard

ways on the pool of water nearby, but Billie was cuddled down upon her warm little nest of eggs. We had removed some of the eggs, so that only ten remained for incubation.

One day late in May, upon returning home Sunday evening, just at dusk, from a week-end camping trip, we went immediately to the chicken yard to see what had transpired during our ab-



The little family, several weeks ago, able to care for themselves but with the down still covering their plump bodies. They are Billie's babies.

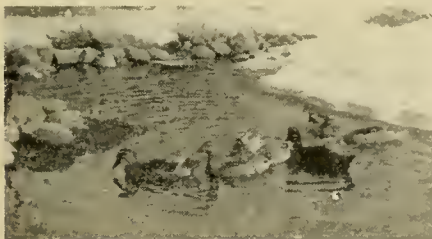
sence. There, in the little pool, was Billie and eight tiny balls of gray.

How proud the mother was, and how she quacked at the sight of us!

The little ducklings seemed to grow over night and became as tame as their mother. Blackie and Big Ben are much larger than the mother; Etta and Skinny are a bit smaller. It is a wonderful family.

Picture Eddie in the garden, leaning on his spade, calling Billie; Ruth opening the gate to the chicken yard, and Billie and her little tribe waddling across the yard, almost leaving the ground in their haste to reach the dinner place.

They knew the meaning of Eddie and his spade—angleworms—and how they loved them! The little family had no fear whatever of the spade. They were all over the clumps of earth almost before they could be turned. One little fellow just escaped being buried beneath



Billie and Bobbie at feeding time

a spade of turning soil; another had a hole punched through the web of his foot.

Billie and Bobbie are justly proud of their now-grown-up children. And right they have! for there never existed a more lovable and interesting family of wild pets.

Birds In Elrod Sanctuary

By CAROLINE WELLS, Secretary, Missoula Bird Club

JULY, the busy month in birdland, finds some seeking nesting sites, or, having selected them, constructing the nests, while others are rearing young, toiling busily to provide sufficient food. Due to the brilliant coloring of the plumage at this season, and to the fact that the males are singing almost continuously during the day, the birds add much to the attractiveness of the landscape.

Out at the Elrod bird sanctuary at Missoula on one corner of the University campus, the shrubs and trees planted recently in honor of Dr. Morton J. Elrod, are nearly all flourishing. Of course it is too soon to see any increase in the bird population due to the establishment of the sanctuary, but, nevertheless, a casual bird census taken there one morning recently may be of interest.

Within the sanctuary is one young cottonwood tree. Two of the bird houses constructed by the Missoula Boy Scouts have been placed there. Energetic little western house wrens, singing enthusiastically over the prospect, evidently have moved in, for they were seen entering one house, while nesting material may be seen sticking out of the opening. Several feet higher in this same tree the western warbling vireos are engaged weaving one of their exquisite little homes. This bird builds a beautiful hanging cup-shaped nest of fine materials, sometimes using bits of wasp nest. The bird observed out at the sanctuary was weaving material with its bill, then, settling down in the nest, was skillfully shaping it with its body.

To the north is a row of young elms and a few feet farther away a row of poplars. Robins with half-grown young are living in one poplar. A western wood pewee has found a site to its liking in a larger poplar and is busily engaged in constructing its interesting nest, saddled flatly onto a half-dead horizontal branch up 30 or 40 feet from the ground. Near this, in one of the elms, another pair of wrens has appropriated a Boy Scout bird house. A pair of Cassin purple finches, the male a handsome rosy fellow with crimson cap, was busily feeding on the elms which are infested by insects. Here also might be seen a gay little yellow warbler flitting about, golf finches, handsome in suits of black and gold, a family of bluebirds and a friendly little chestnut-capped chipping sparrow singing.

A short distance up the hill just east of the sanctuary a new note could be heard, the thrilling and calling of the Arctic towhee, or chewink. This is a rare bird for Missoula, as it is seldom seen here except occasionally during the migration season. It is a handsome red-eyed bird, a little smaller than a robin, black with white markings, and white underparts with reddish-brown flanks. Doubtless it is nesting there, as both sexes were seen, the male with

an insect in its bill. The catbird was demanding much attention, singing his charming and varied song, or giving his catlike cry. Mourning doves flew over the sanctuary, alighting near and calling sadly with answering notes coming from the distance, while farther up a solitary crow flapped by and later a large hawk soared silently and gracefully away.

An Exile from Montana

By CONSTANCE MARION SIMPSON

I heard them praising their gray French country,
Dotted with red roofs high and steep
With one gray church tower keeping sentry
Over the quiet dead asleep.
Gray rocks, and grayer dunes, as gray as duty,
Gray sands where gray gulls flew,
And I cried in my passionate heart,
"They know not beauty,
MONTANA, who know not you!"
I heard them praising the gold of their stormy sunset,
And the pale moon's path on the tossing sea.
I thought of your clouds in their glorious onset—
And your magnificent eagles screaming free;
I thought of your mountains so angel-bosomed,
And quiet in the dusk and dew,
"What flower of beauty in Paradise blossomed,
MONTANA! was denied to you?"
I thought of your pale rose dawns, and your cold gray closes
My Wonderful West, I shall not forget—
The nights when your skies were full of the flying roses
Just millions and millions yet.
Your lakes and rivers so calm and gracious
The mountains and canyons I knew,
When the trumpet of judgment sounds, and the world's in ashes
MONTANA! I'll remember you.
Remember—Why the foretaste of heaven you are, My Mother;
By your marsh lands so brown and bare,
Where every pool is the blue sky's brother,
And your wild larks spring in the summer air;
Land of my heart, I heard their praises,
While smiling and sighing, too,
I would give this gray French land for a few of the daisies
Plucked from the heart of you.

THE CAUSE

Examination Teacher: "Charlie, what does your father do when he finds anything wrong with his car?"

Charlie (truthfully): "He bawls Ma out."

What Has Become of the Grouse?

MONTANA—in keeping with other states of the northwest—is confronted with a serious problem, that of the gradual disappearance of the grouse. Scientists are puzzled. The State Fish and Game Commission has made a constant study to reach remedial conclusions. The problem, in fact, has become national. The work has been carried on by Dr. R. R. Parker of the spotted fever laboratory at Hamilton, recognized as an international authority on tick and other diseases. It continues, yet the grouse of Montana and sister states are fast disappearing. The boom of the big blue grouse in the mountains as well as the whirr of the ruffed or pinnated grouse are passing.

It won't be long now until the shooting season is here, hence the findings of Dr. A. A. Allen, Ph. D., of Cornell University in American Game, on progress during the last season, are unusually timely and interesting. He reports as follows:

"Any study of disease and especially a study of epidemics can be carried on most expeditiously where there is a great concentration of individuals. We would not get very far if we attempted to study smallpox or diphtheria or influenza in the North Woods. Neither do we get very far when we attempt a study of grouse diseases where or when there are not any grouse.

"The year 1928 has been characterized by a great shortage of grouse almost throughout its entire range. All of the provinces of Canada except Quebec and the Yukon declared a closed season as did also nine of the northern United States where grouse shooting is ordinarily enjoyed. In most of the other grouse states the birds were reported as below normal and in some unsuccessful efforts to close the season were made. Because of this shortage of birds, no effort was made this year to gather specimens for the investigation, it being felt that the few birds remaining in the coverts were doubtless healthy and needed protection. Nevertheless several things of importance developed this year which makes it seem advisable to make a report of progress at this time.

"Perhaps no feature of the general grouse investigation received more publicity than the disease called 'Tularemia' or 'rabbit fever.' This disease, which has been shown to be the cause of widespread epidemics among rabbits, has been thought might also be the origin of the so-called 'grouse disease.'

"Dr. R. R. Parker of the Spotted Fever Laboratory at Hamilton, Montana, showed that he could artificially infect blue grouse with the disease and that while it produced death in a few days it produced no visible lesions. He likewise discovered what might be a natural means of transmission of the disease in the common rabbit tick which is also found on the grouse. These discoveries of Dr. Parker we consid-

ered so important that your committee purchased some live ruffed grouse for Dr. Parker so that he could continue his experiments. Up to the present time, however, Dr. Parker has been unable to infect grouse with Tularemia by means of the rabbit ticks.

"Dr. R. G. Green and Miss Wade of the University of Minnesota Medical School have repeated and extended the work of Dr. Parker, including some experiments on pheasants and Hungarian partridges. They found the Hungarian partridge equally susceptible with the grouse in experimental infection with Tularemia but the pheasant they found quite resistant.

"Experimental tests must not be confused with actual field discoveries, nor artificial infection with natural infection. I do not minimize the importance of the discoveries of Drs. Parker, Green and Wade when I call attention to the fact that, as yet, there is not a single known case of Tularemia in birds contracted by natural means even in captivity.

"Furthermore, the problem of identifying a case of Tularemia in birds is made increasingly difficult by their discoveries that the birds under experimental infection died showing no visible lesions or means of identifying the disease. The only way it could be identi-

fied was to reinject healthy guinea pigs with serum from the dead birds, producing typical lesions on these animals.

"Dr. Parker is continuing his experiments in Montana in transmission of Tularemia by means of infected ticks and also plans to experiment with infected maggots, at the suggestion of G. H. Corsan. He is handicapped, however, by a shortage of live grouse to experiment with since the last lot we sent him had high mortality in shipment and we have been unable to locate another source of supply.

"George Sutton brings up the matter of the possibility of a migration of the grouse in Pennsylvania. This is one feature of the life history of the grouse which your committee has given study and upon which it would like more information. Up to the present time we have been unable to get any definite information proving that there is ever a definite migration of the ruffed grouse. On the other hand there are plenty of facts to prove that there is ordinarily no migration.

"There is never an appearance of the northern races of the ruffed grouse further south in winter. Covies, when not 'shot up,' frequently remain together all through the winter. Replacement of birds when the breeding stock is all 'shot out' is very slow. Old birds are found in the same place throughout the year and in successive years. No 'flights' of grouse have been recorded other than birds similar to the ones reported by Audubon as flying across the Ohio river to get into better feeding grounds on the other side.

"Of course there is the problem of the so-called 'crazy grouse' which some consider as a form of migration. The evidence collected by your committee thus far indicates that these birds have made the unusual flights largely through fright occasioned by one of several causes. Some that we have examined have apparently been struck by hawks or owls; a considerable percentage have been parasitized with the stomach worm; and a number have been picked up after high wind storms during the night. In a few cases the birds have been apparently normal and have flown into windows during the day and here the cause of fright was indeterminable.

"The Massachusetts Fish and Game Protective Association published a progress report of the New England Grouse Investigation Committee in which Professor A. O. Gross of Bowdoin College, who is in charge of the investigation, gives a very interesting summary of the food studies of 455 grouse made by Mr. Sperry of the Biological Survey. He likewise gives a summary of the weights and measurements of 100 male and 100 female grouse.

"Owing to the scarcity of grouse no general call was made for specimens but scattering birds found dead in the woods were sent in from various quar-

Does Are Targets



GALLATIN county has declared an open season on female deer, through act of the last legislature. Here's a group of four does with their fawns, snapped by Deputy Game Warden Frank R. Marshall of Bozeman, Mont. The open season is between October 15 and November 15, hence out of the octette there's venison in sight.

ters and these were all carefully studied.

"The Conservation Commission of Wisconsin issued orders to its game wardens to collect specimens throughout the state for the investigation and through the active interest of W. B. Grange we received about 75 specimens from parts of the grouse range from which we previously had no specimens. By a study of these specimens we were able to extend the known range of a number of the parasites including that of the stomach worm not previously recorded west of New York state.

"The general committee has now examined nearly 1300 specimens and the New England committee over 1200, making over 2500 specimens altogether which have been carefully antopsied.

"The work on the life history of the parasites of the ruffed grouse was discontinued this year for want of fresh material. The work was so handicapped last year because of a shortage of live parasites from which to get eggs that it was thought useless to attempt anything this year with the grouse season closed in New York state and no source of supply in sight. Instead some rather extensive studies of the blood of the grouse were made by Mrs. W. K. Burkmyer, our parasitologist.

During previous hunting seasons slides were taken into the field and blood smears made from all grouse killed. These were preserved, stained and examined for blood parasites, none of which was found.

"Blood smears were also made from all captive grouse, both hand-reared and wild-trapped, healthy and diseased, young and old. Blood counts were likewise made and the various types of corpuscles figured as well as counted in both healthy and diseased birds.

"The significance of these studies is not yet well understood owing to the lack of comparable material but they should become increasingly valuable as our studies progress.

"No new experiments in artificial propagation were attempted this year. One hand-reared female, with no mate, that laid eggs and wanted to set, was given a setting of wild eggs in place of her own infertile ones. She hatched nine and raised two to maturity in spite of very inclement weather with only four days of sunshine during June. A second setting given to a bantam as a check, all died within two weeks.

"From the very start of this grouse investigation it has seemed desirable to have an area of grouse cover that could be studied intensively and observed carefully from one year to the next. An area upon which all of the grouse could be discovered and where a record could be kept of what became of them; an area where all of the food plants and feeding areas could be charted and a record of the movements of the grouse and particularly the young grouse could be preserved.

"This year Gardiner Bump completed such a survey of what is known as the Connecticut Hill area, about 13,000 acres of hill land 17 miles southwest of Ithaca, N. Y. Within this area the New York State Conservation Commission has decided to develop a game refuge and demonstration forest and already options have been taken on about 4,000 acres.

"Within this Connecticut Hill region we selected an area of about 1200 acres and Mr. Bump prepared a detailed map of all the vegetation on the tract and located especially all of the grouse food plants. We then made a special effort to locate all the grouse on this tract at the beginning of the hunting

season and decided there were 22 grouse on the area.

"This was in a region open to public hunting though because of its relative remoteness there seemed to be few hunters present on any of the days when Mr. Bump was there. At the close of the hunting season when there was snow on the ground and the grouse were relatively easy to find, another census was made and the largest number of grouse that could be found was four. A careful check was then made of all the sportsmen who were likely to have hunted within the area and though no hunter killed more than three grouse, the killing of 20 grouse from this area was established. The killing of two more during the winter by an owl and a fox left the area with but two grouse for the following season. Here the cause for the 'grouse epidemic' was obviously over shooting. This area will be followed from year to year and an attempt made to determine the method of 'come-back' if one is staged.

"One common belief regarding the 'grouse disease' is that not only is it due to one organism but that it occurs periodically and more or less uniformly all over the country. If the present depression is typical of all previous ones, and there is no reason for believing that it is not, it has not come suddenly nor is it in the same stage in the various parts of the birds' range. In a few places undoubtedly the grouse are at present at their lowest ebb; in others they are still on the downward path; while in still others the low point has been passed and the pendulum is on the upward swing. Take it the country over, however, the year 1928 marks a very low point in the history of grouse abundance."

Coyote Pups Grow Up to be Fashionable Neck Pieces



Coyote pups just old enough to be noseys, starting to grow into pretty red or silver fox furs for members of the aristocracy. They are members of the Yip-Yap family now but in a short time you'll never recognize them.



This husky coyote pup, whose home is at the Wixona Fur Farms at Denton, Mont., is strong for his bottle, but declines to take his milk from a human hand. He has no scruples in drinking when the bottle is lodged in a bush.

WHILE hunters employed by the State Fish and Game Commission, the Biological Survey and the Montana Livestock Commission, are riding the open country of Senor Yip-

Yap and his tribesmen, fur farmers of the state are finding that coyotes when bred in captivity or raised after being dug out, bring fancy prices on the market. The fur nets them all the way

from \$15 to \$25 and with a goodly band of the prowlers in captivity, the profit helps pay many a butcher and baker. These pictures of pups were taken at the Wixona Fur Farms at Denton, Mont.

The Poison Question

Missoula, Mont.

Editor MONTANA WILD LIFE:

There appears to be considerable difference of opinion over the question of using poison for destruction of coyotes and other predatory animals of the state. Many trappers have reported to me instances of other fur bearers and song birds being killed by poison baits. No matter who it is that puts out these baits, whether federal, state or private trappers, it is impossible for them to account for all the baits put out. I used poison myself on a trap line some years ago and I found that a coyote would sometimes pack the bait in his mouth for a considerable distance, then spit it out without swallowing it. It then lay around for something else to get it. You do not get much over half the coyotes that actually take the poison and die. This I consider an economical loss to the state with the skins of these animals running around \$20 in value. The very fact that these skins have become so valuable is the reason why it is not necessary to keep federal or state trappers employed to destroy them. At the present price the private trappers throughout the state will do this efficiently themselves.

It may be a hard matter to estimate the difference in economical value of the destruction wrought by the coyote and the value of the skins taken each season, but it is my opinion that the value of the skins will far outweigh the value of all stock killed by these animals.

Some years ago eastern fur dealers estimated a yearly yield of 50,000 skins from this state alone; it no doubt is much less now, probably in the neighborhood of 30,000, which at an average price of even \$17 amounts to a respectable total.

While on the subject we might mention the fact that plenty of badger skins from Montana brought from \$30 to \$40 each last season, but still the badger is classified as a predatory animal and subject to destruction by state and federal trappers. The badger should be on the fur list and if necessary protected.

I oppose poison being used for killing coyotes or anything else on the ranges or forests of this state by either federal, state or private trappers.

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ing the economical value of all fur bearers of the dominion, whether wolf or any other. I wish to thank you for the opportunity MONTANA WILD LIFE affords us for airing our opinions.

G. C. HOLLOWELL.

A GROUND WORKER

"Well, Sam," asked the aviator, "how would you like a trip up among the clouds?"

"No, sah!" exclaimed Sam, fervently. "I stays on terra firma, an' de mo' firmah de less terrah."



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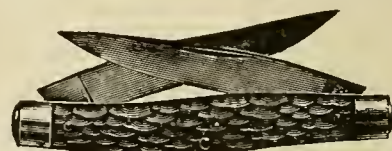
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Balance of Nature

THE disturbance of the natural conditions existing in this country prior to settlement by the advance of civilization is often deplored and blamed for the disappearance of certain forms of wild life. This change is referred to as having destroyed "nature's balance" and we are given to understand that if this mythical balance of nature could be restored all again would be well.

A very earnest and conscientious conservationist recently said: "History records no extermination of any species, no observable diminution of numbers of any form preyed upon, until man and his gun upset nature's perfect balance."

The author of this assertion has evidently forgotten the innumerable forms of life which disappeared from the face of the earth long before man appeared. These changes have been going on on the earth since the beginning of time and while it is undoubtedly true that the use of the gun has hastened the disappearance of certain forms it has been only one of many factors responsible for changes which are constantly in progress.

The gun did not exterminate the passenger pigeon; other devices were more destructive than firearms. The cutting away of the favorite roosting and nesting groves resorted to by this exceptionally gregarious species doubtless was another cause of hastened extinction. The passenger pigeon did not nest or roost in widely scattered places but only in certain favorite groves. When these were destroyed the remaining birds disappeared.

It is not difficult to visualize the disappearance of the buffalo before the advance of the stock ranger and his domestic herds, even if wholesale and wanton killing had not been resorted to.

The balance of nature is bound to be disturbed wherever man makes his habitation. Civilized man cannot exist except through the disturbance of nature's balance. What would become of agriculture if nature were permitted to take her course? The pampered plants which have been developed to supply the world with food could not thrive except by artificial encouragement and so the more desirable kinds of wild creatures can be increased and made more abundant under artificial conditions and encouragement than they can in any perfect state of nature. By protecting the desirable species from the destructive ones, by supplying sufficient quantity and variety of foods, by providing shelter, the Bob-White quail, pheasant, Hungarian partridge, and other kinds of game birds could be made far more abundant than they ever could be in a state where nature's balance prevailed.

The forces of nature are remorseless; their results are the destruction of the weak and the prevalence of the strong, regardless of man's requirements. That is and has been for all time the course of evolution in natural history.

Fisher Folk

By WALT HOLLIDAY, Butte, Mont.

I like to go a-fishin', when the sun is shinin' high.
I like to go a-fishin' when the clouds are sweepin' by.
I like to go a-fishin', and this isn't any lie—

Most any time.

I like to go a-fishin' when the blue is in the sky.
I like to go a-fishin', be the weather wet or dry.

I like to go a-fishin', though my wife may wonder why—

Most any time.

I like to go a-fishin', you can see it in my eye.

I'm goin' to go a-fishin' until the day I die,

And then I'm goin' fishin', at least I'm apt to try—

Most any time.

TRUSTWORTHY

An elderly Scotch woman looked out of the window as the train drew into the station, and hailing a little boy, said:

"Little boy, are you good?"

"Yes'm."

"Parents living?"

"Yes'm."

"Go to Sunday school?"

"Yes'm."

"Love your teacher?"

"Yes'm."

"Then I think I can trust you. Run with this nickel and get me an orange, and remember God sees you!"

MENTAL ARITHMETIC

He—"Mabel says she thinks I'm a wit."

She—"Well, she's half right."

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Page the Dietician!

Methuselah ate what he found on his plate,

And never as people do now,
Did he note the amount of the calorie count;

He ate it because it was chow.

He wasn't disturbed, as at dinner he sat,

Destroying a roast or a pie,
To think it was lacking in granular fat,
Or a couple of vitamins shy.

He cheerfully chewed every species of food

Untroubled by worry or fears,

Lest his health might be hurt by some fancy dessert—

And he lived over nine hundred years!

"And who dwelt in the Garden of Eden, Freddie?"

"Oh, I know—the Adamases."

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Montana's Big Game Problems

WHILE Montana's State Fish and Game Commission is deeply concerned regarding the future of wild life within the confines of the Treasure State, it is confronted with the solution of the problem of reaching a sane balance between the artificial stocking of ranges with big game desired by sportsmen and the demands for grazing grounds required by stockmen to maintain one of Montana's greatest industries.

In the May edition of MONTANA WILD LIFE the question of distribution or elimination of the surplus elk on the National Bison Range at Moiese, Mont., was discussed at length by Frank H. Rose. In the magazine Outdoor America, publication of the Izaak Walton League, the subject is taken up at length by Mark Anderson, in an article captioned "Big Game Problems."

The consideration of both sides of the problem is of intense interest to Montana sportsmen. The article by Mr. Anderson reads, in part, as follows:

"Only a few years ago elk were rapidly approaching the vanishing point and even our black-tailed deer were mighty scarce. Antelope were classed with the bison—doomed to extinction. Now the public does not yet fully realize the wonderful recovery that these big game animals have made within the last fifteen years here in the western United States.

"Almost total protection in some instances, short open seasons in others, a bag limit of one animal, usually a male, the destruction of predatory animals such as the coyote and the cougar, systematic patrol of our national forests and parks, government and state agencies working in cooperation to protect and conserve wild life, and all of this backed by an aroused public, has worked wonders and will accomplish still more wonders in conservation management if properly directed.

"In the range states, where the raising of sheep and cattle is a major industry, a real conflict has developed in spots and threatens to spread as the elk and deer go on increasing in a geometric ratio. We must act quickly and wisely if we expect to minimize a conflict that will no doubt react to the detriment of the elk and the deer and the cause of wild life conservation generally.

"If widely distributed we could have several times the elk and deer that we now have without their being noticed upon the range. But this matter of controlling the numbers and distribution of game within a given range unit or forest division is a new and difficult problem. We must learn to handle this problem or prepare ourselves to take some very serious setbacks within the next few years.

"Not only is it important to control the numbers and distribution of game for the protection of the stockmen but for the sake of the deer and the elk

we must always keep in mind the carrying capacity of the range.

"Surely a hundred thousand elk is not many if they could be widely distributed. And even our deer are not numerous considering the extent of the range. But instances of local congestion are increasing rapidly. The stockmen, being directly concerned in an economic way, are quick to protest not only against what has happened but against what might happen. They lack confidence in our ability to keep the increase of game at a desired level without adopting exterminative measures.

"Our elk have been accused of nearly every crime on the calendar. Don't be surprised if you find these noble creatures charged with robbing the ranchers' hen houses, eating the family washing off the line or kidnaping the ranchers' little children. Yes, and they will on occasion commit murder. Ask Ranger Christensen of the Uinta who slid down through the brush onto a wounded bull elk last fall. But Chris was quick on the trigger and the bull found it difficult to use his big antlers to advantage in the heavy brush.

"Conservationists, it is up to us to handle this problem in such a way that we will be able to increase rather than decrease our big game.

"We must guard against the adoption of state-wide policies based upon conditions existing only in a few spots.

"Where snow falls deep elk can be trapped and moved from congested ranges to other areas. This of course offers only a partial and temporary solution but is good policy until we get elk on every public range unit suitable for them. The removal of deer from congested ranges is as far as we know out of the question. Hunting then appears to offer the best solution. Often the driving of elk and deer is suggested. Driving elk with saddle horses has been tried in Jackson's Hole and on the Nebo range in Utah. An attempt was made to drive deer off the Kaibab. Failure has resulted in every one of these instances. One might as well attempt to drive birds. And even if they are driven in the desired direction they won't 'stay put.' Elk and deer become attached to a certain range the same as range horses do.

"While the wisdom of feeding hay to wild game in a few instances as a last resort is not questioned, feeding on a big scale is not desirable. The Jackson's Hole and Yellowstone elk are fed in severe winters but even in these cases it is the object to keep the game wild and capable of hustling for themselves.

"Legislatures should wherever necessary grant further discretionary power to their fish and game departments to enable them to act promptly and freely in handling these local situations. This need not greatly interfere with our present general policy of protection.

While the public should be informed as to the general policy to be followed detailed legislation will only tend to make proper handling more difficult.

"It appears that we are rapidly approaching the intensive stage of forest and wild life management. Conferences alone will not solve our difficulties. No amount of discussion will bring out all the needed facts. Careful field work must be done. Counts of big game must be carefully made. Range conditions must be studied on the ground. The habits of the game as well as the domestic stock must be closely observed. These factors as well as many others must not be left to guess or the whole matter will finally result in an arbitrary policy where prejudice will rule and the strongest group will have matters entirely their own way.

"It is evident that the real hard work of handling this problem is in the hands of our fish and game departments, the Forest Service, and in a few instances, the Park Service is concerned. In Utah a committee consisting of representatives of all major interested groups is trying to handle this problem. No doubt the matter could be handled with greater speed by a fish and game commissioner acting alone. It is our belief, however, that the actions of a commission or a committee are more apt to be correct and receive the endorsement of the general public even at the sacrifice of speed.

"In the development of our management plans perhaps we can learn a lot from older countries but we must get down to brass tacks on each individual area. We should know more about the suitability of each watershed or forest unit for different classes of game, the balance between summer and winter range.

"The winter range problem is much more serious in most instances than the summer range problem. In the west the best summer ranges for deer and elk are within the national forests and parks. But the most of the adjacent winter range, the foothills, is private property. The right of the game on public lands can be successfully defended against private interests. But this private range situation surely complicates matters. It is not expected that private range owners will adopt drastic measures if the numbers of game animals on these private ranges can be kept within reasonable bounds.

This is our problem. Can we do it without adopting exterminative methods?

THRIFTY BRIDEGROOM

Mr. MacDonald (arranging with the clergyman for his second marriage)—"And I should like the ceremony in my yard this time, sir."

Clergyman—"Good gracious, why?"

Mr. MacDonald—"Then the fowls can pick up the rice—we wasted a deal last time!"